UNITED STATES DEPARTMENT OF EDUCATION

THE SECRETARY

October 10, 1996

The Honorable Reed E. Hundt
Chairman
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: Federal-State Joint Board on Universal Service,
CC Docket No. 96-45

Dear Chairman Hundt,

We are writing at a critical juncture in the effort to implement the universal service provisions of the Telecommunications Act of 1996. The Federal-State Joint Board that you chair will soon make its recommendations to the Commission concerning policies that will preserve and advance our nation's long-standing goal of affordable access to telecommunications service for all Americans including schools, libraries and rural health care clinics. We commend you and the other members of the Joint Board for your commitment to universal service and stand ready to provide any assistance that may help the Board successfully complete the important task at hand.

As you know, the Clinton Administration is strongly committed to the prompt deployment of a basic package of telecommunication services to every school and library in America--urban, suburban, and rural--to ensure that our nation's learners --both children and adults--have universal access to the Information Age. On behalf of the Administration, NTIA at the Department of Commerce, the Department of Education, and the Department of Agriculture are today filing a plan to implement the E-rate, a free "education rate," that will guarantee that we reach the goal of universal connectivity by the year 2000.

Technological literacy is a critical skill for America's students to succeed in the 21st century. Simply put, today's work force rewards those workers who possess computer literacy skills, and tomorrow's work force will demand computer literacy skills. In order to prepare our children to meet the challenges of the 21st Century, universal access to the Information Superhighway will be critical. The Internet, in many ways, is the blackboard of the future. It is our strong belief that by advancing free basic access, we will increase the pace of classroom learning and continuing efforts to improve education.

Unfortunately, the cost of access to telecommunication services continues to be a barrier for too many schools and libraries. These costs prevent many of our teachers and children from using the vast educational resources available on the Internet. Working with educators and

librarians from around the nation, we know that connections to the Internet are only one part of the answer. The second part is the on-going monthly charges for access, and here we find that there is great disparity in what schools and libraries are paying for access. By way of illustration, we know that some districts are paying about $200 a month in access charges while others pay $2,000 for the same technology and services.

In adopting the Telecommunications Act of 1996, Congress recognized for the first time the need to ensure that all schools and libraries are included in the context of Universal Service. Although we are making progress in connecting our schools, today only 9 percent of our classrooms are connected. For these reasons, this Administration supports a guarantee of universal access to advanced telecommunications and information services for every public, private, and parochial K-12 school and library in America. This proposal ensures that no school or library will be denied the opportunity to participate in the Information Age because of an inability to pay.

This proposal supports the long-standing American tradition of providing free education to every American child. It builds on significant investments by schools and libraries. In fact, schools and libraries are investing million of dollars on computers, software, and teacher training. Those investments would be jeopardized if schools and libraries cannot afford to pay the monthly access charges. This proposal guarantees universal access to the Information Superhighway for every school and library in America.

We recommend that the Joint Board endorse the concept and principles that we are presenting today as well as the framework for implementation that we propose. Under separate cover, we have requested that the Departments of Commerce and Education be permitted to present this proposal to the Joint Board at its meeting on October 17, 1996. At that time, we will further describe the goals and operation of the E-rate and be available to answer any question you may have.

Sincerely,

Richard W. Riley
Secretary of Education

Daniel R. Glickman
Secretary of Agriculture

Michael Kantor
Secretary of Commerce

cc: Commissioner Rachelle B. Chong
Commissioner Susan Ness
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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
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FURTHER COMMENTS OF THE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

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SUMMARY

In the Telecommunications Act of 1996, Congress recognized, for the first time, the crucial role of America's schools and libraries in bringing the benefits of the Information Age to our country. Believing that if special and advanced telecommunications and information services are made available to educators, children, and parents through our schools and libraries, America will be better poised to meet the challenges of the 21st Century, Congress adopted the Snowe, Rockefeller, Exon, and Kerrey Amendment. This provision -- now Section 254(h) of the Act -- seeks, among other things, to ensure that schools and libraries become connected to the National Information Infrastructure (NII) through preferential rates for "special services" as defined by the Federal Communications Commission.

At this critical juncture, the Joint Board has an opportunity to articulate a public policy that will shape access to telecommunications and information services for the coming century. Recently, Representative Edward Markey (D-MA) and Senator Byron Dorgan (D-ND), together with U.S. Education Secretary Richard Riley and Larry Irving, Assistant Secretary for Communications and Information at the Department of Commerce, advanced the concept of an "E-rate" applicable to basic telecommunications services for schools and libraries. This "education rate" would guarantee a free package of basic telecommunication services to every school and library in America. In addition, discounted rates for access to other

services used for "educational purposes" would be established.

On June 29, 1996, Vice President Gore stressed that affordable connections to information networks available today and in the future are an essential part of the Administration's comprehensive initiative on technology literacy. He called upon state and federal regulators to implement the vision of the Telecommunications Act to ensure the availability of affordable, universal access to the tools of the Information Age.

On behalf of the Administration, the National Telecommunications and Information Administration (NTIA) at the Department of Commerce, the Departments of Education and Agriculture now offer guiding principles for and an approach to establishing discounted rates for schools and libraries that we believe further the goals of the Act and will ensure that the vision of the E-rate proposal becomes a reality. We recommend that the Joint Board endorse the E-Rate concept and adopt the framework we present below.

In fashioning new universal service policies for schools and libraries, the Commission and the States must ensure that those policies are consistent with the Act's mandate to foster meaningful competition in every segment of the telecommunications marketplace in all U.S. jurisdictions. The Administration's E-rate proposal seeks to fulfill the mandate of section 254(h) of

the 1996 Telecommunications Act, by melding a competitive bidding model with a basic package of telecommunication services that would be universally available to all schools and libraries. The plan's system of discounts would be applied on a tiered basis, with a credit feature allowing for the most flexible use.

Most fundamentally, the E-rate plan would seek to ensure an initial deployment of basic telecommunications and information capabilities to all schools and libraries that would be integrated with the curricula and research skills needed for success in the next century. The first-tier discount would apply to K-12 schools and libraries as directed by the Act. The basic package would enable schools and libraries to gain access to services at no cost to them and would include basic connectivity and Internet access, at adequate transmission speeds.

Calculation of the cost of the basic package for a school or library should be based on prices or economic costs, including a reasonable profit margin, that approximate a competitive result. While the basic E-rate package would be free to a school or library, competitive bids would be used to help determine the amount reimbursable from the universal service fund (USF) to the winning carrier.

Beyond the basic package of services, other services would be discounted less than 100%. These services could conceivably

encompass any offering of telecommunications service providers other than basic connectivity and Internet access. The service provider would receive the basic package credit applied against the total purchase of special and advanced services if the school chose not to take the basic package. For the non-basic package services, the bids, constrained by a "best value" ceiling, would serve to substantially reduce the price a school or library would pay but would not generally be reimbursed from the USF; the fund would be tapped only for high-cost and low-income areas.

For high-cost or low-income schools or libraries, a further discount would be applicable. The discount for a given school or library could be based on an affordability index whereby these institutions would receive greater price reductions. Rural locales comprise a disproportionately large percentage of high-cost areas. The amount of the discounts for high-cost and low-income areas would be properly covered by the USF.

The workings of the marketplace, coupled with a variety of public-private partnerships for training, hardware, content, and technical support, should help meet the Administration's goals of connecting all schools and libraries by the year 2000. Contributions -- whether donations of new or surplus system, free software, NetDay internal connections, volunteer training or technical assistance -- would complement the E-rate. Moreover, market opportunities can be realized by users as well as

suppliers; banding together in buying coalitions, schools and libraries can produce even greater volume discounts and scale economies benefiting all concerned. In addition to the importance of contributions and market opportunities, sustainability should be fostered due to the attractiveness of both "total-package" and volume sales for providers as well as the new capabilities afforded students, teachers, librarians, and their patrons through procurement of Information Age capabilities.

Integrating education and functionalities is pivotal. Educational objectives and curricula should properly drive the use of bandwidth, transmission speed, and other functionalities. The Administration also recommends that the E-rate and USF approach be revisited by the Joint Board and the FCC every three years or sooner if requested by bona fide petitions. During these triennial reviews, policymakers should solicit views from all stakeholders in the educational system to ensure a dynamic process.

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FURTHER COMMENTS OF THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

The National Telecommunications and Information Administration (NTIA), an agency within the Department of Commerce, is the President's principal adviser on domestic and international telecommunications and information policy. NTIA respectfully submits these Further Comments, on behalf of the Departments of Commerce, Education, and Agriculture in response to the Commission's Notice of Proposed Rulemaking and Order Establishing Joint Board (Notice) in the above-captioned proceeding (Federal-State Joint Board on Universal Service, CC Docket No. 96-45, FCC 96-93 (released Mar. 8, 1996)).

A Plan to Implement the E-Rate: Guaranteeing Universal Access to the National Information Infrastructure for All Schools and Libraries in America

I. Introduction

In the Telecommunications Act of 1996, Congress recognized, the crucial role of America's schools and libraries in bringing the benefits of the Information Age to our country. Believing that this nation will be better poised to succeed in the new

century if special and advanced telecommunications and information services are made available to educators, children, and parents through our schools and libraries, Congress adopted the Snowe, Rockefeller, Exon, and Kerrey Amendment. This provision -- now Section 254(h) of the 1996 Telecommunications Act -- seeks, among other things, to ensure that schools and libraries become connected to the National Information Infrastructure (NII) through preferential rates for "special services" as defined by the Federal Communications Commission (FCC). Moreover, the Act directs the FCC to establish "competitively neutral rules . . . to enhance, to the extent technically feasible and economically reasonable, access to advanced telecommunications and information services" (§254(h)(2)(A)).

The Clinton Administration fully supports both the spirit and intent of this law, having worked diligently to ensure that every classroom in public, private, and parochial schools as well as every library in the United States is connected to the NII by the year 2000. Under President Clinton's Technology Literacy Challenge and the leadership of U.S. Education Secretary Richard Riley, every child in America will have access to the technological tools necessary to be ready for work and life in the 21st century. Computers in the classroom, software packages that support recognized curriculum goals, and teacher training are of the highest priority. The Administration has committed

extensive resources to demonstrating how technology can enhance life-long learning with its technology grants to schools and libraries through the Commerce Department's Telecommunications and Information Infrastructure Assistance Program (TIIAP), the Education Department's Challenge Grants program, and the Department of Agriculture's Distance Learning Grants program. The President and Vice President are participating in NetDay initiatives in states across the country in an effort to wire every school for internal computer connections. At the same time, the President's 21st Century Teachers initiative contemplates 100,000 teacher volunteers working with other teachers to become more accomplished with the latest computer technology. Further, the President has issued an Executive Order making federal surplus equipment available to schools and libraries. In a sustained, systematic way, the Administration has led the effort to bring America's school and libraries into the age of technology.

While significant progress has been made, much remains to be done. For example, in 1994 only 35 percent of public schools were connected to the Internet; a year later, penetration had risen to 50 percent. Internet connectivity for public libraries increased at an even greater pace, from 21 percent to 45 percent during approximately the same time period. However, only 9% of our classrooms are connected, severely limiting children's access to this critical teaching and learning tool. Moreover, more than

75 percent of public libraries do not currently offer some electronic capabilities sought by their patrons, such as graphical World Wide Web (WWW) interfaces.

In addition, access to the Internet varies widely. According to a U.S. Department of Education survey,. Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995 (*hereinafter* Dept. of Educ. Survey), only 31 percent of schools with large proportions of students from poor families have access to the Internet, compared to 62 percent of schools with relatively few students from poor families. Access is also related to school enrollment size -- from 39 percent for schools with fewer than 300 students to 69 percent for schools with 1,000 or more students (Table 4). This same survey also reveals that "funding and inadequate telecommunications access points were the most frequently cited barriers to acquiring or using advanced telecommunications in public schools" (Table 14).

These barriers to using advanced telecommunications in the classroom come at a time of record school enrollments. This year, total public and private school enrollment set a new national record of 51.7 million students. Enrollments will continue to rise because of the "baby boom echo" for the next ten years to a record 54.6 million in 2006. As a result, school districts all across the nation are under enormous fiscal constraints in meeting the demands for more classrooms and

teachers and many find themselves unable to move forward in meeting their technology needs.

Similarly, public libraries' use of the Internet differs by the size of population served. Based on the National Commission on Libraries and Information Science report, The 1996 National Survey of Public Libraries and the Internet: Progress and Issues (*hereinafter* NCLIS), public libraries serving communities under 5,000 population are 59% less likely to use the Internet than those serving populations in excess of 100,000. Moreover, Internet use by public libraries varies by region of the country.

The Federal-State Joint Board on universal service, created to make recommendations to the FCC on the universal service provisions of the Act, thus stands at a critical juncture in this important undertaking. In formulating its recommendations on universal service for the FCC, the Joint Board can articulate a public policy that will shape access to telecommunications and information services for the coming century. Representative Edward Markey (D-MA) and Senator Byron Dorgan (D-ND), together with U.S. Education Secretary Richard Riley and Assistant Secretary of Commerce, Larry Irving, advanced the concept of an "E-rate" applicable to basic telecommunications services for schools and libraries. This "education rate" would guarantee a free package of basic telecommunication services to every school and library in America. In addition, discounted rates for access

to other services used for "educational purposes" would be established.

On June 29, 1996, Vice President Gore stressed that affordable connections to information networks available today and in the future are an essential part of the Administration's comprehensive initiative on technology literacy. He called upon state and federal regulators to implement the vision of the Telecommunications Act to ensure the availability of affordable, universal access to the tools of the Information Age.

On behalf of the Administration, the Departments of Commerce, Education, and Agriculture now offer guiding principles for and an approach to establishing discounted rates for schools and libraries that we believe will further the goals of the Act and will ensure that the vision of the E-rate proposal becomes a reality. We recommend that the Joint Board endorse the E-Rate concept and adopt the framework we present below.

II. Principles for Developing an E-Rate Plan

The following six principles form the foundation of an E-rate plan and the associated universal service fund (USF) support for schools and libraries:

- Telecommunications and information services made available under an E-rate plan must meet recognized educational objectives, including the need for adequate bandwidth and transmission speed in order to support educator-designed curricula.

- In designing a plan to implement the E-rate, there must be a dynamic and open process utilizing advice and counsel from all groups that have a stake in the future of our educational system.

- All schools and libraries must have flexibility in procuring needed telecommunications and information services, while demonstrating an educationally sustainable plan.

- The most efficient use of the universal service fund (USF) support system should be promoted through the use of market-based techniques wherever possible.

- The support must be technology-neutral.

- All competitors seeking to serve schools and libraries must have equitable and non-discriminatory access to the USF.

III. Basic Elements of an E-Rate Plan

Essentially, Section 254(h) of the 1996 Telecommunications Act requires all telecommunications carriers that serve a given geographic area to provide, upon bona fide request, any of their designated special services at "rates less than the amounts charged for similar services to other parties." The Administration's E-rate proposal seeks to meet this mandate by melding market-based incentives (i.e., a competitive bidding model) with a basic package of telecommunication and information services that would be universally available to all schools and libraries. The plan also supports access by schools and libraries to other telecommunications services by providing additional discounts. The plan establishes a framework for implementing §254(h) of the 1996 Telecommunications Act, that encourages schools and libraries to have the technology plans in place in order to implement the remaining, non-telecommunications portions of the system. These non-telecommunications-related portions will account for at least 80% of the cost of the technology plan and include hardware, software, training, technical support, and building "retrogrades," or renovations to support systems required to permit these institutions to access the benefits of the NII.

This proposal makes recommendations to the Joint Board and the FCC balancing stakeholder interests, including the education

community, users (e.g., basic telephone ratepayers), competing providers, and other affected parties. Designed to ensure that all schools and libraries can participate, the plan's system of discounts would be applied on a tiered basis, with a credit feature allowing for flexible use. Fundamentally, the E-rate plan would seek to ensure an initial deployment of basic telecommunications and information capabilities to all schools and libraries that would become integrated with the curricula and support research skills needed for success in the next century while also encouraging future growth.

A. A Basic Package to Assure Basic Connectivity, Transmission Speed, and Internet Access for the Nation's Schools and Libraries

The basic package would be available to K-12 schools and libraries as directed by the Act. Key elements of this concept on a going-forward basis include the following:

- The "E-rate" would enable schools and libraries to gain access to a basic package of services at no cost to them or, alternatively, to credit the equivalent monetary amount toward a larger package of services.

- The basic package would include basic connectivity and Internet access at adequate transmission speeds to meet educational needs. This basic package of services for schools and libraries would contain both basic connectivity

and Internet access and would be discounted 100 percent. This mix appears consistent with user preferences. For instance, a recent survey of educators regarding the scope of universal service found that respondents overwhelmingly view connectivity (98%) and Internet data services (94%) as their most important service and educational need, respectively (see Information Renaissance at http://info ren.pitt.edu/universal-service/network-democracy.html).

Basic connectivity would involve both installation and monthly rates for external access, and the inside connections or "networking" required to ensure that at least one personal computer (located in an area accessible to students) is on-line. (Networking to all classrooms remains the goal and is included in the second-tier discount discussed below.) Internet access would include e-mail and the multimedia resources of the World Wide Web (WWW). Drawing upon the criteria the new Act sets forth in §254(c)(1) with respect to universal service in general (i.e., households), both connectivity and Internet access are "essential to education," "being deployed in public telecommunications networks," and manifestly "consistent with the public interest." Albeit not yet representing a "substantial majority" of such institutions, both services are currently being subscribed to by a large and growing percentage of schools. Fifty percent of public schools are

connected to the Internet and among those that are not "hooked up," 74% plan to obtain access in the future (Dept. of Educ. Survey, Table 13).

- Sufficient bandwidth to support curriculum needs would be provided at a basic level for all schools and libraries. For today's purposes, a throughput of 1.5 Mbps would seem to provide sufficient capabilities for most schools and libraries. For example, today most public libraries with service areas numbering 500,000 persons or more tend to use T-1 capabilities for their Internet connections, while those serving smaller populations currently lease bandwidth of T-1 or less (generally 56 Kbps) (NCLIS, pp.19-21). Similarly, public schools of all sizes that have access to the Internet favor T-1 or less (Education Department, Table 10). A reasonable "menu" of bandwidths to be made available to these institutions, based on their need, would seem to be a data rate up to 1.5 Mbps.

Clearly, the bandwidth required would depend upon the curriculum or informational needs of the individual school or library. One possible approach to integrating these elements would be to determine the bandwidth and speed required to permit simultaneous on-line access by multiple students engaged in educational activities or library patrons doing electronic research. For example, many

schools have found that 128 Kbps can service five computers simultaneously downloading from the Internet. Alternatively, this data rate might satisfactorily accommodate modest access for 25 computers. Where 15 PCs or more need to be on-line concurrently, a higher bandwidth would be necessary. Much more analysis needs to be done to develop a comprehensive metric, but the direction and the utility of the approach appear promising.

This framework seeks to provide schools and libraries with the required level of connectivity without dictating a specific network architecture. It is anticipated that competing architectures or technologies will be successful in driving down price and advancing innovations in systems and services over time. This would be accomplished as districts publish requests for proposals (RFP) that outline their basic needs and allow competitors to propose various solutions to meet those needs. Through this process, technological innovations would drive down the cost of the E-rate to the universal service fund.

- Calculation of the cost of the basic package for a school or library should be based on prices or economic costs, including a reasonable profit margin, that approximate a competitive result. The basic package would be free to a school or library. Competitive bids should be used to help

determine the amount reimbursable from the USF to the winning carrier. Where no bidder exists other than the incumbent provider, as in remote or other sparsely populated areas or inner cities, then a "bid ceiling" value could be calculated based upon the best available commercial rate in similarly situated areas, if any, or a "cost-plus" rate including a return to the provider, could be calculated to simulate the "best value" rate for a given school or library. State or regional (rather than national) benchmarks would be used for either price or cost-based methodologies.

In short, the basic package would consist of basic connectivity of up to 1.5 Mbps bandwidth, and Internet e-mail and WWW capabilities. For schools and libraries, these functionalities would be free of charge although the much larger non-telecommunications costs, such as hardware and training, would not be included, and service providers would recover the amount of the support from the USF.

B. <u>All Other Telecommunications Services Would Become Available to All Schools and Libraries at Market-Driven Discounted Rates Wherever Possible, and at Special Discounted Rates for Low-Income or High-Cost Institutions</u>

Beyond the available basic package of services, other services would be discounted less than 100%. These services could conceivably be any offering of telecommunications service

providers other than basic connectivity and Internet access. Features of this category of functionalities would be:

- Similar to the basic package, these services would be priced based on a competitive bidding process. A school or library would pay no more than the best available commercial rate and could even receive a lower rate when multiple bidders, taking advantage of lower cost or superior technology, participate in the process. A bid ceiling could also be based on a cost methodology (including an adequate return for providers) or an appropriate percentage of the tariffed rate. Although the institutions benefit from these price pressures, the resulting discounts would not be recovered from the USF by the winning bidder because we assume the price covers cost with a margin. If schools or libraries choose not to take the basic package, the service provider would, however, receive the basic package credit applied against the total purchase of the special and advanced services.

- For low-income or high-cost schools or libraries, an additional discount would be applicable. High-cost or low-income areas may still not be able to afford advanced services. To remedy this, an additional discount would be made available to institutions in these categories. The discount for a given school or library could be based on an

affordability index whereby more seriously disadvantaged institutions would receive greater price reductions.

The basket of special and advanced services, then, would feature market-based discounts that would be expanded in the case of high-cost or low-income schools or libraries. Overall, the E-rate plan would create a system of incentives that catalyze efficient prices and establish discounts that ensure basic telecom functionalities (i.e., connectivity and Internet access) for all K-12 schools and libraries, with additional support provided to those institutions that are either high-cost or low-income. The basic package credit and the additional discount for high-cost or low-income institutions would be reimbursed from the universal service fund. This approach preserves technological neutrality by fostering outcomes based on cost, capability, and user demand -- not government fiat. Considerable flexibility would be accorded schools and libraries through choice of provider, and type of connectivity and Internet access, plus the offering of a portable credit. For those providers participating in the E-rate program, fair, non-discriminatory access would be afforded to USF support.

C. <u>The Size of the Fund Would Be Dictated by Market Forces Wherever Possible.</u>

The plan outlined above relies heavily on market-based influences. Competitive bidding for best value -- the best